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Gender gap a scientific myth, says psychology expert

Cordelia Fine book explodes experts' consensus of major differences between male and female brains hardwired at birth

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Cordelia Fine's book,

Delusions of Gender, dismisses claims of biological destiny for the sexes. Photograph: Dean Cambrey

They are the questions that have troubled – and antagonised – men and women for generations: why can't females read maps, why can't males multitask, and why do girls like Barbies while boys prefer guns?

But claims that men are naturally analytical and competitive while women are compassionate and nurturing are, according to a new book, based on bad science – and, at worst, are "monstrous fictions".

Dr Cordelia Fine, author of *Delusions of Gender: How Our Minds, Society and Neurosexism Create Difference*, says there is no convincing evidence that our brains are hardwired according to gender, and no such thing as "biological destiny".

"Avid readers of popular science books and articles about gender may well have formed the impression that science has shown that the path to a male or a female brain is set in utero, and that these differently structured brains create essentially different minds," says Fine, whose book is published in the UK this week.

"These cultural lores, which in popular hands can become nothing short of monstrous fiction, are standing in the way of greater sex inequality – just as measures of skull volume, brain weight and neuron delicacy did in the past".

Fine's book has been praised by academics in *Newsweek*, *USA Today* and *New Scientist*. "Fine eviscerates both the neuroscientists who claim to have found the answers and the popularisers who take their findings and run with them", says Katherine Bouton, deputy editor of *The New York Times Magazine*.

But other experts passionately disagree. Psychologist Susan Pinker, who suggested that the gender gap has in part neurological or hormonal roots in her bestselling book, *The Sexual Paradox*, says: "Subtle but important sex differences are observable from the first days after conception.

"The norms for civil behaviour in science require researchers to follow strict rules in order to publish their findings in peer-reviewed journals. Their results – which are open and available to all – describe what is, not what we might choose if we were designing a

perfect world. These are compelling studies that add to our understanding of human development. Why would we ignore them?"

Professor Simon Baron-Cohen says he is unwilling to comment until he has finished Fine's book, but he is unlikely to agree with her. In his influential book, *The Essential Difference*, Baron-Cohen argued that "the female brain is predominantly hard-wired for empathy. The male brain is predominantly hard-wired for understanding and building systems."

Fine is unabashed. "There *are* sex differences in the brain. There are also large sex differences in who does what and who achieves what," she says. "It would make sense if these facts were connected in some way, and perhaps they are. But when we follow the trail of contemporary science we discover a surprising number of gaps, assumptions, inconsistencies, poor methodologies and leaps of faith."

Combing through the latest research in [psychology](#) and neuroscience, Fine concludes that "the sheer complexity of the brain lends itself beautifully to overinterpretation and precipitous conclusions. It's a compelling story that offers a neat, satisfying explanation, and justification, of the status quo." Fine warns that "brain facts" about the sexes – in fact, stereotypes with a veneer of credibility – are worming their way into apparently scientific books.

Fine agrees that there are differences between men and women's brains. The male brain is, on average, about 8% larger. A small group of cells in the hypothalamus is bigger in men. However, "it's not known what this little group of cells does," she says. "It may have a physiological rather than psychological function."

As for other claimed differences, she argues, there might be "engineering" reasons for larger brains to be arranged differently from smaller brains.

She also points out that, because of the brain's plasticity in responding to the world around it, differences in male and female brains can't just be chalked up to congenital biological differences. "The circuits of your brain are a product of your physical, social and cultural environment, your behaviour and your thoughts," she says. "Gender as a social phenomenon is part of our neural circuitry."

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Those gender myths in full...

Multitasking

Women really are better than men at juggling more than one task at once - according to a study earlier this year by British psychologist Professor Keith Laws at the University of Hertfordshire, which found what it claimed was the first evidence of female multitasking superiority.

"Women are better at being able to stand back and reflect for a moment while they are juggling other things," said Laws.

Map reading

Researchers say it is all down to differences in the reliance of the sexes on either grey matter or white matter in their brains to solve problems.

A study published in the journal *NeuroImage* found that in intelligence tests men use 6.5 times as much grey matter as women do - but women use far more white matter.

Grey matter processes information in the brain while white matter is central to emotional thinking and the ability to do more than one thing at once.

Gossip

Women spend more time gossiping than men - and women are much more likely than men to gossip about close friends and family members. This is according to research published in the science journal *Sex Roles*, however, no significant sex differences were uncovered regarding the derogatory tone of gossip, and men and women were found to gossip about many of the same topics.

Guilt

Females, particularly adolescents and women between the ages of 25-33, have higher levels of guilt than males. The study, published earlier this year in the Spanish Journal of Psychology, found that guilt was linked to the higher levels of empathy in females.

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